

TITLE; PROCESS FOR TREATING WATER WITH ULTRAVIOLET ACTIVATED OXYGEN GAS USED DURING THE SOAK, GERMINATION, AND GROWING STAGES OF SEEDS AND REMOVING A HAZARDOUS CONDITION BY REPLACING CHLORINE USAGE.

ABSTRACT

A PROCESS FOR ACHIEVING A 5 LOG REDUCTION (99.9%) OF BACTERIA ON SEEDS USING ULTRAVIOLET ACTIVATED OXYGEN GAS. THE SEEDS ARE IN A TANK AND THE GAS IS INTRODUCED USING A SPARGING SYSTEM THAT ALLOWS THE GAS TO BE DELIVERED IN 20 to 60 MICRON SIZE BUBBLES FOR GREATER CONTACT AREA BETWEEN THE SEED AND GAS, ALLOWING THE ACTIVATED OXYGEN TO REDUCE BACTERIA FAST AND EFFICIENTLY. ALSO, THE WATER IS SATURATED WITH ULTRAVIOLET ACTIVATED OXYGEN FOR USE IN GERMINATING AND AIDING IN GROWING PROCESSES. THIS REDUCTION OF BACTERIA RESULTS IN EXTENDED SHELF LIFE AND NO CHLORINE IS USED

ULTRA VIOLET ACTIVATED OXYGEN IS DEFINED AS:

ASSUMING AMBIENT AIR HAS 21% OXYGEN CONTENT, FOLLOWING IS THE TYPES OF GASSES CREATED BY THE ULTRA VIOLET LAMP (185 NANOMETER) FROM THE 21% OXYGEN.

HYDROXY RADICAL	2%
ATOMIC OXYGEN	0.5%
HYDROGEN PEROXIDE	6%
HYDROPEROXY RADICAL	2%
HIGHER PEROXIDES	7%
OZONE	2%
UNKNOWN	1.5%